

### Claims

1. Deep rolling apparatus of a deep rolling machine for crankshafts, in which two arms across from each other bear a deep rolling roller head or a supporting roller head, whereby the supporting roller head is provided with two supporting roller with parallel axes and the deep rolling roller head with at least one deep rolling roller whose axis of rotation has the same direction as the axis of rotation of the crankshaft and which encloses an angle with the latter, with a driving device producing the closing and opening motion of the deep rolling apparatus as well as the deep rolling force, characterized in that for a scissor-like construction of the deep rolling apparatus (8) an axial guide roller (27) is provided on the deep rolling roller head (13) and is centered relative to the deep rolling roller head (13), its axis of rotation (7) being perpendicular to the axis of rotation (4) of the crankshaft (3) and having a diameter (28) that is slightly less than the distance (29a) between two lubricators of a main axle journal (6) or lobe axle journal (5) of the crankshaft (3).

2. Deep rolling apparatus of a deep rolling machine for crankshafts in which two arms across from each other bear a deep rolling roller head or a supporting roller head, whereby the supporting roller head is provided with two supporting rollers having parallel axes and the deep rolling roller head with at least one deep rolling roller whose axis of rotation has the same direction as the axis of rotation of the crankshaft and encloses an angle with the latter, with a drive direction<sup>1</sup> that produces the closing and opening motion of the deep rolling device as well as the deep rolling force, characterized in that for a compact scissor-like construction of the deep rolling apparatus (49) in which the two arms (43, 44) are connected to each other via a yoke (45), an axial guide roller (52) is provided on the yoke (45) and is centered relative to the deep rolling roller head (13), whose axis of rotation (7) is perpendicular to the axis of rotation (4) of the crankshaft (3) and has a diameter (28) that is slightly less than the distance (29a) between two lubricators (25, 26) of a main axle journal (6) or a lobe axle journal (5) of the crankshaft.

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<sup>1</sup> In the translator's opinion this is a typo in German and should be "driving device"

3. Deep rolling apparatus as in one of the claims 1 or 2, characterized in that the axis of rotation (7) of the axial guide roller (27, 52) encloses an acute angle (37) with the plane (38) that contains the axis of rotation (4) of the crankshaft (3) and is at a distance (s) from the common plane (34) of the axes of rotation (32, 33) of the two supporting rollers (21, 22) and is parallel.
4. Deep rolling apparatus as in one of the claims 1 or 3, chain one of the claims 1 or 3, characterized in that the axial guide roller (27, 52) is cylindrical or crowned on the outside.
5. Deep rolling apparatus as in one of the claims 1 or 4, characterized in that the axial guide roller (27, 52) or the sliding body is made in form of a pair of rollers or a pair of sliding bodies.